SOLAR OBSERVATIONS.

SOLAR AND SKY RADIATION MEASUREMENTS DURING OCTOBER, 1922.

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For a description of instruments and exposures and an account of the method of obtaining and reducing the measurements, the reader is referred to this REVIEW for April, 1920, 48: 225.

From Table 1 it is seen that direct solar radiation intensities averaged slightly above the normal for October at Washington and Madison and slightly below the normal at Lincoln. A noon reading of 1.444 gram-calories per minute per square centimeter of normal surface, measured at Washington on the 31st, equals the highest October reading previously obtained at that station.

Table 2 shows that the total solar and sky radiation received on a horizontal surface averaged above the October normal at Madison and close to normal at Washington.

Skylight-polarization measurements made on 12 days at Washington give a mean of 59 per cent, with a maximum of 74 per cent on the 31st. At Madison, measurements made on five days give a mean of 70 per cent, with a maximum of 74 per cent on the 18th. These are above the average polarization values for October at the respective stations, and the maximum at Washington is the highest polarization measurement ever obtained at that station.

TABLE 1.—*Solar radiation intensities during October, 1922.*

[Gram-calories per minute per square centimeter of normal surface.]

Washington, D. C.

Date.	Sun's zenith distance.										
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon.
	75th meridian time.	Air mass.									Local mean solar time.
		A. M.					P. M.				
	e.	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e.
	mm.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
Oct. 2	10.21	.....	0.82	0.95	.....	.....	.....	.....	.....	.....	10.59
3	9.33	.....	.....	0.58	0.83	.....	.....	.....	.....	.....	10.21
5	12.68	.....	.....	.....	0.72	.....	.....	.....	.....	.....	14.60
11	9.47	.....	.....	.....	1.22	.....	.....	.....	.....	.....	18.59
12	7.87	.....	.....	0.80	1.11	.....	.....	.....	.....	.....	7.87
13	4.95	0.92	1.04	1.16	1.31	.....	1.30	1.06	0.91	.....	4.17
18	4.57	.....	0.77	1.02	1.22	1.46	1.19	0.93	0.87	0.76	3.30
19	4.37	0.87	0.96	1.03	1.14	.....	1.27	1.09	0.96	0.87	4.17
20	5.56	0.46	0.54	0.62	0.85	.....	1.17	0.98	0.82	0.68	4.95
21	4.37	.....	0.63	0.77	0.95	1.17	.....	.....	.....	.....	4.57
26	4.75	0.68	.....	.....	.....	.....	.....	.....	.....	.....	4.37
27	4.75	.....	0.82	0.98	1.17	1.40	.....	1.03	0.60	0.53	4.75
30	4.37	.....	0.54	0.68	1.10	.....	1.26	1.11	0.97	0.85	3.30
31	4.17	1.01	1.10	1.22	1.37	1.53	1.34	1.19	1.05	0.94	3.57
Means	.....	0.79	0.80	0.89	1.08	1.39	1.26	1.06	0.88	0.77	.....
Departures	.....	+0.04	−0.02	−0.02	−0.02	.....	+0.16	+0.16	+0.11	+0.09	.....

TABLE 1.—*Solar radiation intensities during October, 1922*—Continued.

Madison, Wis.

Date.	Sun's zenith distance.										
	8a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon.
	75th meridian ime.	Air mass.									Local mean solar time.
		A. M.					P. M.				
	e.	5.0	4.0	3.0	2.0	*1.0	2.0	3.0	4.0	5.0	e.
	mm.	*c*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
Oct. 9	6.76	.....	.....	.....	1.22	.....	.....	.....	.....	.....	5.79
10	6.50	.....	.....	.....	1.27	1.42	1.27	1.12	1.00	.....	6.50
11	6.27	.....	0.87	0.99	.....	.....	.....	.....	.....	.....	4.75
12	3.63	.....	1.06	1.19	1.34	1.52	.....	1.19	.....	.....	3.63
18	3.15	.....	.....	1.25	1.37	.....	.....	.....	.....	.....	2.06
19	3.99	.....	0.86	0.77	1.25	.....	.....	0.99	.....	.....	5.16
25	5.79	.....	.....	.....	.....	.....	1.33	.....	.....	.....	5.36
27	5.16	.....	.....	0.88	.....	.....	.....	.....	.....	.....	6.76
Means	.....	.....	0.93	1.06	1.29	(1.47)	(1.30)	1.10	(1.00)	.....	.....
Departures	.....	.....	+0.01	+0.01	+0.11	.....	+0.12	+0.08	+0.10	.....	.....

Lincoln, Neb.

Oct. 4	9.83	.....	0.68	0.82	0.99	.....	.....	.....	.....	.....	8.48
9	4.37	.....	.....	.....	1.26	.....	1.26	0.85	0.72	0.55	4.17
10	3.81	.....	.....	1.01	1.25	.....	1.23	1.02	0.93	0.82	6.02
11	5.16	.....	0.89	1.05	1.24	1.46	1.31	1.14	1.00	0.88	3.15
12	3.45	.....	.....	.....	1.39	.....	1.17	0.98	0.80	.....	2.74
14	4.37	.....	.....	.....	.....	.....	1.17	0.91	0.78	0.58	3.45
18	2.87	.....	.....	.....	.....	.....	1.39	1.13	0.99	0.90	2.74
19	4.17	0.84	0.96	1.10	1.28	1.48	1.27	1.05	0.90	0.79	4.95
20	5.16	.....	0.92	1.07	1.23	1.45	.....	.....	.....	.....	6.50
23	3.81	.....	.....	1.07	1.32	.....	.....	.....	.....	.....	4.37
24	4.57	.....	.....	1.18	.....	1.55	1.30	1.07	0.93	0.80	4.17
25	4.95	.....	.....	0.86	.....	.....	.....	.....	.....	.....	5.28
26	5.36	.....	.....	1.13	1.29	.....	1.18	1.01	0.89	0.80	6.02
Means	.....	(0.84)	0.86	1.03	1.25	1.48	1.25	1.02	0.88	0.76	.....
Departures	.....	−0.06	−0.10	−0.07	−0.03	.....	±0.00	−0.05	−0.05	−0.06	.....

* Extrapolated.

TABLE 2.—*Solar and sky radiation received on a horizontal surface.*

Week beginning.	Average daily radiation.			Average daily departure for the week.			Excess or deficiency since first of year.		
	Washington.	Madison.	Lincoln.	Washington.	Madison.	Lincoln.	Washington.	Madison.	Lincoln.
	cal.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Oct. 1	308	256	.....	−20	−29	.....	−3,626	−1,853	.....
8	277	275	.....	−30	+19	.....	−3,833	−1,717	.....
15	330	303	.....	+42	+76	.....	−3,540	−1,187	.....
22	282	248	.....	+12	+42	.....	−3,453	− 890	.....
29	236	151	.....	−16	−36	.....	−3,563	−1,143	.....

MEASUREMENTS OF THE SOLAR CONSTANT OF RADIATION AT CALAMA, CHILE.

NOTE.—The reports from Calama having been delayed in transmission from South America will appear in the next issue of the REVIEW.—*Editor.*